

The American Fertilizer

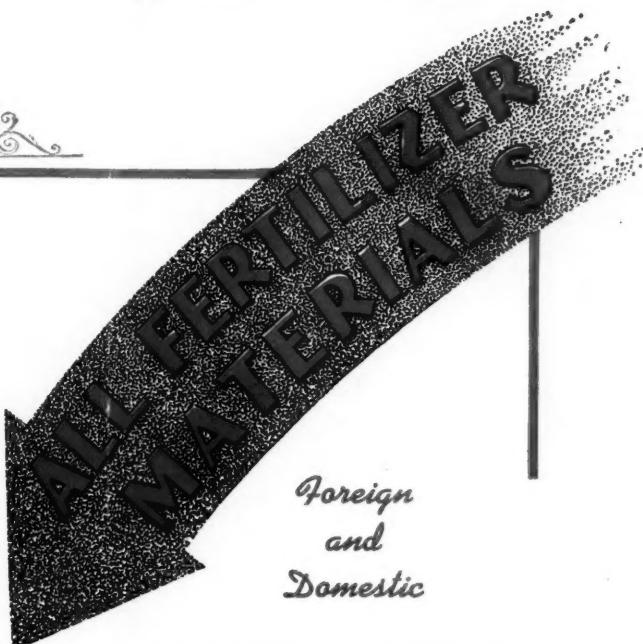
Vol. 10

NOVEMBER 6, 1943

No. 10



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AMMONIUM NITRATE
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SULPHATE of AMMONIA
•
ORGANIC AMMONIATES
•
SULPHUR
• • •



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Victory strategist maps out spring campaign



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MENTION "THE AMERICAN FERTILIZER" WHEN WRITING TO ADVERTISERS.

...THE...

AMERICAN FERTILIZER

"That man is a benefactor to his race who makes two blades of grass to grow where but one grew before."

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Senate Committee Starts Investigation of Fertilizer Production and Delivery Problems

Prospects of increasing the amount of Chilean nitrate imported for the 1944 Food Production Program above the 500,000 tons scheduled for importation between now and June, depend entirely on military developments in the South Pacific, a subcommittee of the senate committee on agriculture was informed November 5th.

Opening an investigation of the actions of the WPB Stockpiling and Transportation Division and the War Shipping Administration in reducing Chilean nitrate imports to 50 per cent of the amount brought in for the current crop year, the subcommittee was told that the question of supplies is solely one of nitrate versus General MacArthur.

Dr. William Y. Elliott, chief of the Division of Stockpiling and Transportation, testified that, unless we get a totally unexpected change in the shipping picture in the South Pacific, 500,000 tons is all the nitrate that can be brought in. Richard M. Bissell, director of ship requirements of WSA, testified later that the present shipping situation in the South Pacific is expected to continue until the turn of the year, after which some improvement in space is hoped for, which may make it possible to bring in more than the 500,000-ton maximum. Dr. Elliott said that there are a number of ships returning from Australia empty, but for them to stop at Chilean ports to load up with nitrate would require a thirty-five to forty-day diversion of their course, and this is not practical at this time.

The committee's inquiry was prompted by widespread protests from farmers, fertilizer manufacturers, and dealers against the proposed cut in imports and the requirements of

WPB that ammonium nitrate be used for direct fertilizer application. They said that the physical condition of the ammonium nitrate was such that it could not be stored for any reasonable length of time nor can it be handled by distributor machines. Phillip H. Groggins, chief of the Chemicals and Fertilizer Branch of WFA, agreed that the ammonium nitrate is difficult to store and handle, although it does constitute a good fertilizer after it has been applied. He estimated that 345,900 tons would be available by June, of which about 250,000 tons will be for direct application. About 110,000 tons will be supplied by TVA; about 140,000 tons from Canada; and the rest from the Army Ordnance plants which are just now getting into production. They will produce about 15,000 tons monthly by the end of the year.

The investigating subcommittee is composed of Chairman Ellison D. Smith, of South Carolina; Senators John H. Bankhead, of Alabama; Allen J. Ellender, of Louisiana; Raymond E. Willis, of Indiana; and George D. Aiken, of Vermont.

Shipping Space Enigma

The decision of the War Shipping Administration to guarantee cargo space for only 500,000 tons of Chilean nitrates—approximately one-half of the amount that was brought in for the 1942-43 season—was made recently in face of the fact that the government has negotiated for purchase of 700,000 tons of nitrates from Chile, and has a 60-day option to purchase another 300,000 tons. Chairman Smith said:

"If I don't get the 'powers that be' to furnish the shipping to import this amount

(1,000,000 tons), I am going to introduce the same resolution that I did in the last World War, calling for an appropriation of a \$20,000,000 revolving fund to take government ships to Chile and bring back nitrate of soda to America and sell it at cost, for cash, and take the wherewithal and go back and get more until we get the 1,000,000 tons."

Communications directed to the committee from farmers, fertilizer manufacturers and dealers profess their inability to understand the reasoning behind the WAA's action, in view of the fact that some 3,000,000 tons or more of shipping is now available than last year, and since the shipping lanes between the United States and South America have been largely cleared of the submarine menace.

Ammonia Nitrate Discussed

A number of farmers also have complained to the committee of their troubles encountered in trying to use ammonium nitrate for fertilizing their crops, which is being encouraged by the government because of the shortage of mixed fertilizer. They report that the material burns the hands and cannot be used in mechanical distributors.

J. A. Woods, president of the Chilean Nitrate Sales Corporation, under date of October 29th, forwarded to the committee 175 letters and statements from government agricultural workers; fertilizer manufacturers and dealers; and farmers, appealing for some action being taken that would eliminate the probable shortage of Chilean nitrates for use on next year's crops, and asking also that the ammonium nitrate be used in mixed fertilizer. Mr. Woods' letter follows:

"For the current year, we have been advised that present plans provide for only enough shipping to bring in 500,000 tons. The balance of the nitrogen fertilizer needed is to come chiefly from ammonium nitrate produced by the government plants in this country and Canada, including the TVA, originally built for munitions purposes.

"This ammonium nitrate should certainly be used in mixed fertilizer, but its usability as a side dressing is seriously questioned by most informed people because of (a) its mechanical condition; (b) the present shortage of farm labor; (c) change in long-established farm practices, and (d) poor storage arrangement and location of plants."

Potash Lend-Lease

One of the letters to the committee was from W. H. Farmer of the Anderson Fertilizer Company, Anderson, South Carolina,

complaining of the shortage of potash and suggesting that it may be due to heavy exports to England. These exports are being made at a time when we are importing some potash from Russia, he said. His letter added:

"Why do they (Great Britain) not get it from Russia, Spain or Palestine? It is because potash from those places costs money, whereas what they get from the United States is free."

This letter was forwarded by Chairman Smith to War Food Administrator Marvin Jones for his comment. Mr. Jones refrained from discussing the conclusion drawn by Mr. Farmer, although admitting that British takings of American potash is reducing the supply. Mr. Jones' reply went on to state:

"Because of the allocation of potash to Great Britain, the volume available for the United States agriculture during the fertilizer year 1943-44 will be approximately 10 per cent less than in the previous year 1942-43. The allocation to Great Britain was based on the reasonable data that ship space would be conserved and actual food requirements for the Allies more nearly accomplished by utilizing United States produced potash for food production in the British Isles rather than in the United States. Necessarily this policy requires some adjustment in the fertilizer program during the current year. This adjustment is being accomplished by a plan operating through the fertilizer industry which will permit farmers to purchase grades of fertilizer containing slightly less potash than normal or purchasing desired grades on a slightly lower volume than heretofore."

Nitrogen and Superphosphate

"Even though we regret that there is not adequate potash to supply the anticipated requirements we believe the additional supplies of nitrogen and superphosphate will at least in part, if not wholly, offset the effect on crop production of the slight decrease in potash. There is a base possibility that the allocations to Great Britain may be partially replaced by future shipments from Russia and Spain to either Great Britain or the United States. May I assure you that every effort is being made to secure these shipments from Russia and Spain to the end that the supplies of potash for the United States will be the greatest possible under existing circumstances."

Another letter in the committee's files on the subject of Chilean nitrate imports is from

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TVA To Distribute Excess Army Ammonium Nitrate

Distribution of ammonium nitrate being produced by the Army's ordnance plants for use as a fertilizer material is to be handled solely by the Tennessee Valley Authority during the ensuing three months, after which it is hoped by the War Production Board's Chemicals Division the fertilizer industry itself will set up an organization to carry on the distribution work.

In a letter to nitrogen producers, manufacturers, and distributors of fertilizers and fertilizer materials, made public November 3rd, D. P. Morgan, director of the Chemicals Division, said that arrangements have been made to have the TVA handle the distribution until January 31st under a program embodying these principal features:

1. TVA will provide specifications of procedure to produce ammonium nitrate crystals of the most appropriate size and gradation for fertilizer use. It will also specify the conditioning treatment necessary to improve the physical condition of the crystal for fertilizer use. Ordnance will agree to operate under these specifications.
2. If the Army ordnance desires, TVA will furnish conditioning materials, at cost, in order to expedite initial operations.
3. Bags will be labeled as follows: Ammonium nitrate fertilizer, guaranteed 32.5 per cent N, manufactured to TVA specifications.
4. TVA will sell the Army ammonium nitrate through the Associated Co-operatives Inc., for distribution under WPB allocation in the States of Florida, Georgia, Alabama, Mississippi, Louisiana, Texas, Arkansas, Tennessee, Kentucky, and such counties in western Virginia and western North Carolina as fall in the watershed of the Tennessee River.
5. TVA will sell the Army ammonium nitrate through one or more brokers or agents to be designated by WPB in all other States east of the Rocky Mountains, except that TVA or its agent, Associated Cooperatives, Inc., may sell the Army ammonium nitrate in this territory directly to cooperatives, when the army ammonium nitrate is allocated by EPB to such a cooperative in the ordinary course of allocation. At the present time WPB designates as agent the Ashcraft, Wilkinson Company, which is now the distributing agent for the Canadian government in this area.

The nitrogen goal for agriculture in 1943-44 has been set by the WPB at 625,000 tons, and as an important element in this plan the Ordnance Department has agreed to operate marginal facilities producing ammonium nitrate to augment the supply of materials from present sources. But because the amount of material to be made available by Ordnance is uncertain, its production is to be considered surplus material and will be channeled to meet the demand over and above the output of the Canadian plants and TVA production.

It is expected that about 15,000 tons per month of the Army ammonium nitrate can be placed during the next three months, and it is hoped that larger amounts can be placed before the three months are over. WPB will keep TVA advised of the monthly quantities of the Army material which it believes can be absorbed by agriculture under the increased food production program of the War Food Administration.

Dr. Morgan's letter said that the agreement to have the TVA handle the distribution will terminate January 31st, at which time it will be subject to renewal or to replacement by some other method for distributing the Ordnance ammonium nitrate. He was bringing it to the attention of the fertilizer industry at this time in the hopes that it would work out a substitute plan to go into operation when the present agreement expires.

Under the present 90-day arrangement, the net price to be realized by the Army Ordnance Department is \$47.50 per ton, the fertilizer to be sold on an f.o.b. basis, and the price specifically made subject to any future applicable OPA regulations.

At the termination of the 90-day period, the Ordnance Department will probably be in a position to operate without outside technical aid and assistance, but in the event that it desires such aid for production, it is understood that the Hercules Powder Company is willing and able to furnish it at cost.

In expressing the hope that the fertilizer industry will take over the handling of distribution, Dr. Morgan said it must be realized, however, that there are certain features of the present plan which must be continued in operation in whatever substitute plan is

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November Crop Report

The harvesting of most late crops was well advanced by November 1st as dry weather offset the scarcity of labor and permitted field operations to progress with little interruption. Most of the cotton, soybeans, potatoes and other late crops are under cover and a good start has been made on cribbing the big corn crop. On the other hand, the limited rainfall during much of October was decidedly unfavorable for growth in pastures and for the seeding of winter grains and cover crops.

Reports on the yields of the crops now being harvested average about as expected for the country as a whole but show many local

CROP	TOTAL PRODUCTION (in thousands)		
	Average 1932-41	1942	Preliminary 1943 ¹
Corn, all.....bu.	2,349,267	3,175,154	3,085,652
Wheat, all.....bu.	738,412	981,327	835,816
Winter.....bu.	550,181	703,253	533,857
All spring.....bu.	188,231	278,074	301,959
Durum.....bu.	26,992	44,660	36,251
Other spring.....bu.	161,240	233,414	265,708
Oats.....bu.	1,018,783	1,358,730	1,148,692
Barley.....bu.	243,373	426,150	330,212
Rye.....bu.	38,589	57,341	33,314
Buckwheat.....bu.	7,029	6,687	8,516
Flaxseed.....bu.	14,226	40,660	51,486
Rice.....bu.	47,334	66,363	69,019
All sorghums for grain.....bu.	61,294	107,245	106,917
Hay, all tame.....ton	73,277	92,245	85,872
Hay, wild.....ton	9,675	13,083	11,357
Hay, clover and timothy ².....ton	23,476	28,276	27,934
Hay, alfalfa.....ton	26,709	36,547	32,473
Beans, dry edible, 100-lb. bag	14,325	19,608	22,160
Peas, dry field, 100-lb. bag	2,617	7,160	9,458
Soybeans for beans.....bu.	51,571	209,559	206,017
Peanuts ³.....lb.	1,214,777	2,206,935	2,681,955
Potatoes.....bu.	363,332	371,150	469,092
Sweet potatoes.....bu.	69,291	65,380	75,801
Tobacco.....lb.	1,349,896	1,412,437	1,400,873
Sorgo sirup.....gal.	14,472	13,674	12,428
Sugarcane for sug- ar and seed.....ton	5,105	5,840	6,950
Sugarcane sirup.....gal.	20,818	18,610	18,640
Sugar beets.....ton	9,834	11,681	7,239
Broomcorn.....ton	40	35	28
Hops.....lb.	37,992 ¹	34,896	38,516
Apples, com- mercial crop ⁵.....bu.	121,788 ⁴	128,597 ¹	88,122
Peaches, total crop.....bu.	55,392 ¹	66,380 ¹	42,060
Pears, total crop.....bu.	27,938 ⁴	30,717 ⁴	23,761
Grapes ⁶.....ton	2,354 ⁴	2,402	2,790
Pecans.....lb.	91,113	78,800	105,067

¹For certain crops, figures are not based on current indications, but are carried forward from previous reports. ²Excludes sweet clover and lespediza. ³Picked and threshed. ⁴Includes some quantities not harvested. ⁵See footnote on table by States. ⁶Short-time average.

⁷Production includes all grapes for fresh fruit, juice, wine, and raisins.

changes. Early frosts caught some corn in southwest Minnesota and South Dakota, some peanuts and other crops in the Southwest and nipped gardens southward into northern Mississippi and Louisiana but in southern Iowa and northwestern Ohio late-planted corn and soybeans had a chance to mature.

The corn crop is now estimated at 3,086,000,000 bushels, an increase of 1 per cent from October 1st. Most farmers have husked enough to estimate the yield, and their reports indicate a higher yield per acre and a larger total corn crop than in any season prior to 1942. The early November snows in the northwestern part of the Corn Belt will delay husking but should not cause serious loss. Sorghums for grain, a main source of feed in the Southwest, were nipped by early frost in Oklahoma; but a record acreage is being grown and production is now expected to total 107 million bushels, substantially more than production in any year prior to 1941. Sweet potatoes have been suffering from drought but with the largest acreage since the depression years, production is expected to be nearly 76 million bushels, compared with an average of 70 million bushels. Soybeans and rice are still subject to some risk but are expected to yield about up to earlier expectations. The soybean harvest is well advanced and production is expected to be nearly 206 million bushels, close to production last year, and fully 100 million bushels more than in any preceding year. Rice, at 69 million bushels, would be 3 million bushels more than last year's record output. Tobacco production is also still expected to be about 1,400,000,000 pounds, or about an average crop.

Principal crops likely to fall below the prospects of a month ago are beans and peanuts, each down about 3 per cent, and sugar beets, down nearly 4 per cent. Conditions on November 1st still indicated a potato crop of 469 million bushels. The largest potato crop in past years was that of 1928 when some 427 million bushels were grown but not all could be harvested because of the low price. Early freezing weather and snow have caught part of the Idaho potato crop; some in Maine are still in the ground but, even if losses there should be heavy, the potato crop harvested should still far exceed the quantity harvested in any previous year.

Although all estimates of crops at this season are subject to revision after completion of the current survey of the acreages and production of crops on individual farms, the advanced stage of harvesting now permits a fairly accurate appraisal of the season's out-

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Revision of Fertilizer Order

Changes in WFA Regulations Simplify Procedure. Some New Grades Added. Extra Fertilizer Allowed for Some Group B Crops.

A REVISION of the War Food Administration's Food Production Order No. 5, announced on October 27th, is designed to give a more equitable distribution to fertilizer. New amendments to the order include:

1. Addition of a few grades of fertilizer needed in some states to provide a more equitable distribution of potash in relation to nitrogen and phosphoric acid.

2. Simplification of the application form which farmers use in obtaining fertilizer from local dealers or agents. Use of the simplified form has been authorized in a general letter to the fertilizer industry.

3. Special measures whereby some fertilizers which are new materials or available in larger than usual quantity, may be directed into specific areas to encourage the production of Group B crops—especially crops that respond readily to application of fertilizer but which customarily have not been fertilized.

Aside from these additions, the fertilizer distribution order remains virtually the same as issued last July. The distribution program is designed to give maximum assistance in production of needed food and feed crops.

In general, the program: (1) Continues the approved grade program, providing for grades of fertilizer satisfactory for crop and soil needs of the principal fertilizer-using states, (2) makes fertilizer available according to a farmer's crop requirements, (3) continues the provision under which farmers are required to make application to local dealers or agents for purchases of fertilizer, and (4) gives priority to the delivery of fertilizer to a list of Group A crops.

The A list includes hybrid corn and sugar beets for seed production, peanuts, hemp, dry and snap beans, lima beans, cabbage, carrots, onions, green peas, dry edible peas, potatoes (including sweet potatoes), sweet corn for processing, tomatoes and vegetable seeds. Other crops are in a Group B list.

Farmers are urged to apply to local dealers for fertilizer at once and to take delivery during fall and winter months. This will enable manufacturers to better meet farmers' needs and make the distribution program more effective.

The text of the revised order is as follows:

WAR FOOD ADMINISTRATION

Part 1206—Fertilizer Delivery and Use of Fertilizer

Section 1206.1 is hereby revised and amended in its entirety to read as follows:

§ 1206.1 *Fertilizer*—(a) *Definitions*. For the purposes of this order:

(1) "Fertilizer" means any material used as a plant food containing one or more of the following: Nitrogen, phosphorus, or potassium, excluding, however, unprocessed animal and poultry manure, peat, humus and basic slag.

(2) "Chemical nitrogen" means any nitrogen, other than organic nitrogen, including, but not limited to, ammonium sulphate, sodium nitrate, calcium cyanamide, urea, ammonium nitrate, cal-nitro and nitrogen-bearing solutions.

(3) "Organic nitrogen" means nitrogen derived from any plant or animal organism containing nitrogen, including, but not limited to: animal, fish, garbage, and other processed tankages; bone meal; blood; castor pomace; tobacco stems; oilseed meals (including cottonseed, peanut, soy bean, rape, linseed and other oilseed meals); sewage sludge; cocoa shell meal; bat, peruvian and whale guanos.

(4) "Superphosphate" means any plant food product which is obtained by mixing rock phosphate with either or both sulphuric acid and phosphoric acid.

(5) "Potash" means any material containing potassium in forms usually considered available to crop plants, including, but not limited to, muriate of potash, sulphate of potash, and manure salts.

(6) "Grade" means the minimum guaranteed plant food content of any fertilizer expressed in percentages of its principal plant food components in the following order: Nitrogen, available phosphoric acid and available potash.

(7) "Approved grade" means any grade of fertilizer listed in Schedule I attached hereto.

(8) "Rate of application per acre" means the total pounds of fertilizer applied per acre. Where single-strength or multiple-strength grades are substituted, one for the other, the

pounds of fertilizer shall be increased or decreased in accordance with the nitrogen, phosphoric acid and potash content of the grades used and replaced.

(9) "Group A crop" means any crop listed in Schedule II attached hereto.

(10) "Group B crop" means any crop not listed in Schedule II. It shall not, however, include any crop to the extent that the use of fertilizer in the production of such crop is restricted or prohibited by the terms of this order.

(11) "Victory garden" means any garden planted primarily for the non-commercial production of vegetables and small fruits.

(12) "Production-increment crop" means any crop which may be so designated by the Director in order to promote maximum production to achieve the food, feed, and fiber production goals established by the War Food Administration.

(13) "Production - increment fertilizer" means any fertilizer which may be so designated by the Director when provision is assured for its production, and he finds that it is or will be available, in excess of the quantities needed for customary crop usage or for customary rates of application per acre. The quantities of the ammonium nitrate, ammoniated superphosphate, and superphosphate which manufacturers, agents and dealers have available in excess of customary usage, or the requirements for Group A and Group B crops as shown by applications on hand are hereby designated as production-increment fertilizers.

(14) "Specialty fertilizer" means any fertilizer which is prepared for use on lawns, home gardens, shrubbery, trees, flowers, parks and parkways, malls and roadsides, cemeteries, golf courses and non-commercial plantings of trees, shrubs and flowers.

(15) "Fertilizer manufacturer" means any person who manufactures or mines fertilizer for sale.

(16) "Dealer" means any person, other than a fertilizer manufacturer, who purchases or has purchased fertilizer for resale.

(17) "Agent" means any person, other than a fertilizer manufacturer, who receives or has received fertilizer on a consignment basis for sale.

(18) "Person" means any individual, partnership, corporation, association, business trust or any organized group of persons whether incorporated or not. The term "person" shall also include the United States or any agency thereof, and a State or any political subdivision or agency thereof.

(19) "Director" means the Director of the Office of Materials and Facilities, of the War Food Administration.

Restrictions on Delivery and Use

(b) *Restrictions on delivery and use of fertilizer*—(1) *Schedule I*. No fertilizer manufacturer, dealer or agent shall, subject to the exemptions provided for in paragraph (d) hereof, deliver for use on crops, and no person shall use on crops, in any of the States listed in Schedule I attached hereto, any grade of fertilizer other than the grades designated on such schedule as applicable to the respective States listed thereon, and where a particular grade is designated on such schedule as available only for a particular crop or purpose, such grade shall be delivered and used only for the production of such crop or for such purpose.

(2) *Victory garden fertilizer*. No fertilizer manufacturer, dealer or agent shall, subject to the exemptions provided for in paragraph (d) (2) hereof, deliver in a package of less than 80 pounds in any State listed in Schedule I attached hereto any fertilizer for use on victory gardens other than the grade or grades designated in Schedule I for victory gardens in such States. Such grade or grades, when delivered in a package of less than 80 pounds for such purpose, shall be labeled "Victory Garden Fertilizer—For Food Production Only," and no person shall use in any State listed in Schedule I any fertilizer, delivered in any such package, other than a grade so labeled, for such purpose. Fertilizer of any approved grade for any State may be delivered, in packages of 80 pounds or more, for use on victory gardens in such State. However, the grades designated in Schedule I for victory gardens are recommended for delivery in such packages for use on victory gardens, and fertilizer of such designated grades, delivered in such packages, may be labeled, if so desired, as indicated above. Grades other than such designated grades shall not be so labeled. Nothing in this paragraph shall prevent any fertilizer manufacturer, dealer or agent from delivering for use on victory gardens stocks of fertilizer of the grade of 3-8-7 which on July 1, 1943, were on hand, packaged and labeled "Victory Garden Fertilizer—For Food Production Only." Nor shall anything in this paragraph prevent any person who purchases fertilizer pursuant to this order for use other than on his victory garden from applying for, obtaining or using on his victory garden fertilizer of the grade or grades so purchased.

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November Cotton Report

A United States cotton crop for 1943 of 11,442,000 bales of 500 pounds gross weight is forecast by the Crop Reporting Board of the United States Department of Agriculture. This is only 36,000 bales less than the forecast as of October 1 and compares with 12,824,000 bales ginned in 1942 and 12,474,000 bales, the 10-year (1932-41) average. The indicated yield per acre of 253.4 pounds for the United States is considerably above the 10-year average of 217.00 pounds but below the record yield of 272.5 pounds produced in 1942.

Some reductions from production in prospect on October 1st are indicated for North Carolina, Tennessee, and Missouri, where deterioration resulted from killing frost during mid-October. A small reduction is also indicated for Texas. These reductions are partly offset by increases in Georgia, Mississippi, Louisiana, and Oklahoma, where the crop is turning out slightly better than was expected.

The report of the Bureau of the Census shows ginnings to November 1st at 9,061,252 running bales from the crop of 1943, compared with 9,713,354 bales for 1942 and 7,961,157 bales for 1941.

STATE	PRODUCTION (Ginnings) ¹		
	Average 1932-41 Thous. bales	1942 Crop Thous. bales	1943 Crop Indicated Nov. 1 Thous. bales
Missouri.....	333	417	305
Virginia.....	29	34	25
N. Carolina.....	606	727	610
S. Carolina.....	760	699	700
Georgia.....	997	862	845
Florida.....	25	16	16
Tennessee.....	479	625	500
Alabama.....	1,014	925	950
Mississippi.....	1,530	1,968	1,820
Arkansas.....	1,298	1,485	1,090
Louisiana.....	618	593	745
Oklahoma.....	691	708	375
Texas.....	3,419	3,038	2,825
New Mexico.....	104	111	116
Arizona.....	170	193	141
California.....	384 ²	402	360
All other.....	18	21	19
UNITED STATES . . .	12,474	12,824	11,442

¹Allowances made for interstate movement of seed cotton for ginning.

²Included in State and United States totals.

³Short-time average.

Potash Outlook Improved

A slight improvement in the outlook for potash supplies over conditions existing a month ago has been reported to the fertilizer industry by the War Production Board.

At a recent meeting of the Fertilizer Industry Advisory Committee with officials of WPB, the War Food Administration and the Office of Price Administration, it was stated that due to anticipated release of part of the 60,000 tons of muriate reserved for lend-lease shipment to the United Kingdom, plus some muriate that was not expected to be available for fertilizer purposes, it now appears that an additional 30,000 tons of muriate will be available for allocation to fertilizer during the second period.

There will also be about 12,000 additional tons of manure salts for the second period, thus making an aggregate increase for that period of approximately five per cent of the original allocation for that period. While the increase now appears probable it is not definite, however, and it will not be allocated in any event before the first of December, it was added.

"It is also expected," the association said, "that there will be available for allocation during the third period about 12 per cent of the total amount allocated for the second period, instead of about 10 per cent." If all these increases materialize, the total allocations for the current twelve months (June 1, 1943-May 31, 1944) will be between 90 and 95 per cent of the two-year average of 1941-42 and 1942-43.

Potash Deliveries Increase

The American Potash Institute has announced that deliveries of potash salts within the continental United States, Canada, Cuba, Puerto Rico, and Hawaii by the five major producing companies during the third quarter of the calendar year 1943 were:

	Short Tons K ₂ O July- September 1943	July- September 1942
Muriate.....	128,376	140,802
Manure salts.....	14,389	12,998
Sulphate and sulphate of potash-magnesia.....	13,030	10,839
Total agriculture.....	155,795	164,639
Chemical.....	20,042	13,622
Grand Total.....	175,837	178,261

THE AMERICAN FERTILIZER

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 DEVOTED EXCLUSIVELY TO THE COMMERCIAL FERTILIZER
 INDUSTRY AND ITS ALLIED INDUSTRIES

PIONEER JOURNAL OF THE FERTILIZER INDUSTRY

WARE BROS. COMPANY

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A. A. WARE, EDITOR

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A. O. A. C. Recommends Changes in Fertilizer Definitions

The fifty-eighth annual meeting of the Association of Official Agricultural Chemists was held in Washington, October 27th and 28th and closed with the election of a new official slate, adoption of several amendments to definitions of fertilizer materials, and decisions to continue studies of methods of analysis of a wide variety of food, drugs, paints and other chemical products.

Officers elected for the coming year were: President, G. G. Frary, State Chemical Laboratory, Vermilion, South Dakota; vice-president, J. O. Clarke, chief, central division, Food and Drug Administration Laboratory, Chicago, Illinois; secretary-treasurer, Henry A. Lepper, Food and Drug Administration, Washington. Members of the executive committee are: G. H. Marsh, Montgomery, Alabama; W. H. Ross, Beltsville, Maryland; J. W. Sale, Washington, D. C., and W. C. Jones, Richmond, Virginia.

W. W. Skinner, chief of the Bureau of Agricultural and Industrial Chemistry, who has been secretary-treasurer of the association for the past twenty-one years, and who is retiring from the government upon reaching his seventieth year next March, was elected secretary-treasurer emeritus. He was presented with a Sterling silver tea set by the association in appreciation of his long service with the association with which he has been identified for fifty years.

Official final action was voted unanimously by the members to a recommendation of the committee on definitions of terms and interpretation of results on fertilizers that nitrate of soda and potash be defined as "a commercial product containing nitrates of sodium and potassium and shall contain not less than 14 per cent of nitrogen (N) and 14 per cent of potash (K₂O).

The meeting also approved a proposal of the committee that official first action be given the following recommendation on guaranteed fertilizer elements:

All fertilizer components with the exception of potash (K₂O) and phosphoric acid (P₂O₅) if guaranteed shall be stated in terms of the elements.

Proposed new definitions and interpretations of fertilizer ingredients, approved on first reading, were:

Fused tricalcium phosphate is a glassy material resultant from the quenching of substantially defluorinated fusions of rock phos-

phate. It shall be of such fineness that 90 per cent will pass an 80-mesh screen and 85 per cent of the P_2O_5 content shall be available.

Calcium metaphosphate is a glassy product which is composed chiefly of the phosphate indicated by the formula, $Ca(PO_3)_2$. It shall be of such fineness that 90 per cent will pass a 20-mesh sieve, and its content of available P_2O_5 equivalence shall be stipulated. Example: Calcium metaphosphate—60 per cent available P_2O_5 .

Potassium metaphosphate is a product represented by the formula, KPO_3 . It shall be of such fineness that 90 per cent will pass a 50-mesh screen, and its content of P_2O_5 and K_2O equivalence shall be stipulated. Example: Potassium metaphosphate—58 per cent P_2O_5 , 32 per cent K_2O .

Ammonium nitrate is a product composed chiefly of the nitrate of ammonia. Its nitrogen content shall be stipulated. Example: Ammonium nitrate (30 per cent N).

Magnesia (magnesium oxide) is a product consisting chiefly of the oxide of magnesium. Its grade shall be stipulated. Example: magnesia 75 per cent MgO .

The meeting again gave its approval to a recommendation that bags of fertilizer nitrates carry a warning "injurious to livestock."

September Superphosphate Production Above Last Year

Superphosphate production in September at 112 plants, which report their statistics to the National Fertilizer Association, amounted to 409,184 equivalent tons, basis 18 per cent available phosphoric acid content. This included the production of 380,342 tons of normal superphosphate (basis 18 per cent), base goods which contained the equivalent of 4,334 tons, and 9,803 tons of concentrated superphosphate.

The available phosphoric acid content of total production was 3 per cent higher than the September, 1942, production at the same plants.

Total shipments were considerably smaller than a year earlier, but the decline was offset by an increase in the amount used in the manufacture of mixed goods. The total tonnage disposed of was practically the same in the two months, as shown by the table below.

Stocks increased seasonally during the month. They are substantially lower than a year ago, and are small in relation to prospective demand.

SUPERPHOSPHATE PRODUCTION, SHIPMENTS, AND STOCKS

Short Tons, Basis 18 Per Cent A. P. A.

	September 1942	September 1943
Stocks on hand, beginning of month	859,171	538,858
Production during month	395,749	409,184
Received from acidulators	5,748	4,310
Book adjustments	3,217	—51
Total Supply	1,263,885	952,301
Total shipments during month	261,696	223,707
Used in mixed goods	95,783	133,940
Total disposed of in month	357,479	357,647
Stocks on hand, end of month	906,406	594,654

Obituaries

WALTER W. BROWN

Walter W. Brown, publisher of *Commercial Fertilizer*, died on October 24th, following an operation performed two days previously. One of the leading trade journal publishers in the South, Mr. Brown founded his fertilizer publication in 1910. He took an active interest in the affairs of the fertilizer industry and was a regular attendant at the meetings of the National Fertilizer Association, where he made a wide circle of friends throughout the trade. He is survived by his wife, five sisters and two brothers.

JOSEPH S. TOLSON

It is with deep regret that we learn of the death of Joseph S. Tolson on November 2nd at St. Petersburg, Florida. Mr. Tolson was for many years in charge of the Raw Materials Division of Swift & Company Fertilizer Works, Chicago, having retired from active service March 1, 1940. He had a host of friends in the fertilizer industry who will regret his passing.

EDGAR V. O'DANIEL

The death of Edgar V. O'Daniel, vice-president and director of American Cyanamid Company, occurred on November 4th in New York. Mr. O'Daniel was well known in the chemical industry, having been associated with the Air Nitrates Corporation and National Carbide Corporation before joining the Cyanamid Company. He held from time to time numerous public offices, including that of Deputy Police Commissioner of New York.

October Tax Tag Sales

The pronounced rise in sales of fertilizer tax tags over last year continued in October, when total sales in the 17 reporting States were two-thirds larger than in October, 1942. Sales for the month represented 368,000 equivalent tons, compared with 222,000 tons a year ago and 183,000 tons two years ago. Increases over last year were reported by 14 of the 17 States.

The comparatively large sales in October represented in large part the sale of tags for fertilizer to be used next spring, rather than current consumption. Sales in the early months of 1944 will not reflect accurately actual spring tonnage.

Sales in the first ten months of this year exceeded the comparable period of 1942 by more than 900,000 tons.

Manning Elected I. M. C. C. Vice-President

Dr. Paul D. V. Manning, director of research of International Minerals and Chemical Corporation, Chicago, since August, 1941, has been elected a vice-president of the corporation. As director of research, Dr. Manning is in charge of International's long-range development program and is responsible for the technical work for the operating divisions of the corporation. Under his direction a large staff of chemists and engineers are engaged in research and experimental work in laboratories at Austin, Texas; Carlsbad, New Mexico; East Point, Georgia; Rossford, Ohio, and Peace Valley, Florida.

FERTILIZER TAX TAG SALES

STATE	OCTOBER			JANUARY-OCTOBER		
	1943 Tons	1942 Tons	%	1943 Tons	1942 Tons	1941 Tons
Virginia.....	34,466	21,299	21,745	110	434,731	395,538
North Carolina.....	61,304	30,496	25,088	108	1,194,865	1,106,760
South Carolina.....	42,440	17,770	6,875	118	758,223	639,964
Georgia.....	42,234	27,843	12,740	121	936,737	775,311
Florida.....	91,000	57,501	66,533	123	629,205	510,639
Alabama.....	12,100	4,500	6,750	114	643,800	564,200
Mississippi.....	35,670	12,590	9,175	139	423,214	304,619
Tennessee.....	13,913	13,443	12,103	127	219,266	173,186
Arkansas.....	4,430	.....	1,100	124	165,705	133,158
Louisiana.....	4,680	12,730	4,000	118	183,368	155,716
Texas.....	8,200	1,990	2,075	130	155,150	119,284
Oklahoma.....	500	.....	350	207	18,088	8,747
Total South.....	350,937	200,162	168,534	118	5,762,352	4,887,122
Indiana.....	3,800	10,923	2,323	97	383,790	396,027
Illinois.....	4,087	1,893	1,947	110	88,180	80,089
Kentucky.....	7,500	7,735	7,864	107	154,706	144,087
Missouri.....	1,515	873	695	127	89,561	70,797
Kansas.....	75	50	1,225	143	16,279	11,415
Total Midwest.....	16,977	21,474	14,054	104	732,516	702,415
Grand Total.....	367,914	221,636	182,588	116	6,494,868	5,589,537
						5,462,865

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FERTILIZER MATERIALS MARKET

NEW YORK

Increase in Deliveries of Sulphate of Ammonia and Ammonium Nitrate. No Change in Nitrate of Soda Prices. Muriate of Potash Needed in Larger Quantities.

Exclusive Correspondence to "The American Fertilizer"

NEW YORK, November 3, 1943.

Sulphate of Ammonia

With the additional allocations placed, the deliveries of this material have increased somewhat and from all indications contract obligations are well in hand.

Ammonium Nitrate

Additional quantities of this material from munitions plants are expected to be made available for fertilizer manufacturers, and with this additional material it now looks as if supplies of inorganic nitrogen for fertilizer use for the present fertilizer year are ample.

Nitrate of Soda

In spite of new rates and surcharges approved of on shipments of nitrate of soda from Chile to the United States, there has been no change in the price of this material here.

Potash

Muriate of potash is one inorganic material which will be needed by fertilizer manufacturers in larger quantities than present allocations allow. However, it is not likely that there will be any large quantities of additional material made available, and there is no indication of increased production. Today the situation is such that it will be necessary for producing companies to do their utmost to ship the quantities as originally estimated. There is some indication that part of the muriate reserved for Lend-Lease may be released for domestic use and such release would naturally help the domestic situation.

Superphosphate

Production of this material has been satisfactory but the demand is such that increased production has been taken care of and demand continues. If the supply of sulphuric acid is sufficient, the maximum output can be expected but all available material will surely be taken care of and there is no indication whatsoever of any surplus during this season.

BALTIMORE

Organics Going to Feed Manufacture Almost Completely. More Sulphate of Ammonia Expected. Ammonium Nitrate in Greater Use in Mixtures.

Exclusive Correspondence to "The American Fertilizer"

BALTIMORE, November 2, 1943.

Business in fertilizer materials during the past two weeks has been more or less routine, as is usual at this time of the year.

Ammoniates.—The demand for organics for feeding purposes still exceeds the supply, in consequence of which there are no offerings on the market, and producers are sold right up to the limit. This situation eliminates both tankage and blood as fertilizer ingredients.

Castor Pomace.—There are still no offerings on the market, and some business has been turned down by producers at ceiling price of \$2.90 per unit, f. o. b. producer's works.

Sulphate of Ammonia.—It is reported that beginning November 1st the Government will increase allocations of sulphate of ammonia to fertilizer manufacturers to warrant larger production of complete fertilizer for next season's crops.

Nitrate of Soda.—As far as can be learned up to the present time, there have been no allocations of nitrate of soda for increased fertilizer due to the fact that the mechanical condition of ammonium nitrate has been materially improved. It is anticipated that this commodity will displace nitrate of soda in mixtures, leaving the latter material available for direct soil application only. The market of nitrate of soda remains unchanged.

Superphosphate.—There is no change in the situation and the market is still strong at ceiling price.

Fish Meal.—Only limited stocks on hand, and such tonnage is being held for feeding purposes.

Potash.—Regular deliveries are coming through of domestic production against contracts previously booked.

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+

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Chicago Heights, Ill.	Jacksonville, Fla.	Sandusky, Ohio
Cincinnati, Ohio	Montgomery, Ala.	Wilmington, N. C.
Columbia, S. C.	Nashville, Tenn.	

Bone Meal.—Both raw and steamed bone are still scarce and almost unobtainable. The nominal market is \$50.00 for either grade.

Bags.—There has not been any change, and the use of new burlap is still prohibited for shipment of fertilizer.

PHILADELPHIA

Production of Principal Materials Being Maintained, Few Organics Available for Fertilizers. Superphosphate Production Good.

Exclusive Correspondence to "The American Fertilizer"

PHILADELPHIA, November 1, 1943.

It appears as though superphosphate and potash production are maintaining a good rate. The continuation of sufficient supplies of nitrogen is a constant struggle, but is apparently being done with fair success. Imports of organic materials continue, but these continue to go into other channels.

Ammoniates.—The position of these seem to be about the same, with the inorganic materials being in fairly good supply (although most are under allocation), and the organic materials being almost unobtainable. Some imports (as mentioned above) of tankage, blood, etc., continue to arrive, but the fertilizer trade does not see any of them.

Sulphate of Ammonia.—Contract shipments were at a good rate during the past couple of weeks, and it seems that allocations have been increased somewhat.

Nitrate of Soda.—November prices continue the same. Supply is reported as being good.

Superphosphate.—As already mentioned above, the production is keeping a good rate. The situation in concentrated superphosphate is not much better than in the past, with exports taking considerable of the available supply.

Bone Meal.—Supplies are still limited.

There are some imports, but they are for other uses.

Potash.—WPB has reported an improvement in the outlook for supplies of potash.

CHARLESTON

Raw Material for Nitrogenous Tankage Scarce. Ammonium Nitrate Preparation Improved. Sulphuric Acid Supplies Insufficient.

Exclusive Correspondence to "The American Fertilizer"

CHARLESTON, November 1, 1943.

Nitrogenous.—Processed tankage continues exceedingly scarce, as the producers are having great difficulty locating the raw material.

Castor Pomace.—In spite of heavier arrivals of castor beans, this market continues tight.

Ammonium Nitrate.—In its new form this material has become more popular and shipments indicated for November are much heavier than for July.

Superphosphate.—The fertilizer manufacturers have so far been able to secure sufficient rock, but the bottle-neck in the effort to raise the production of superphosphate has been caused by their inability to obtain sufficient sulphuric acid.

Cottonseed Meal.—Offerings of meal and cake remain small, largely due to labor conditions. The 8 per cent grade is priced at \$49.50, Georgia; \$50.00, South Carolina.

CHICAGO

More Fertilizer Organic Material Hoped For. Labor Shortage Hampers Both Fertilizer and Feed Material Production

Exclusive Correspondence to "The American Fertilizer"

CHICAGO, November 1, 1943.

No change can be noted in the Western organic situation. It is hoped some material will be released this month. At least, such is the hope of several fertilizer manufacturers. The labor situation seems still to be the dominating factor in sellers' position, preventing more liberal offerings or allotments.

Manufacturers'
Sales Agents

for **DOMESTIC**

Sulphate of Ammonia

Ammonia Liquor

::

Anhydrous Ammonia

HYDROCARBON PRODUCTS CO., INC.

500 Fifth Avenue, New York

The rather critical situation in feed materials is unabated. Lack of labor, as in the fertilizer industry, results in producers using every ingenuity to pacify their trade.

High grade ground fertilizer tankage, \$3.85 to \$4.00 (\$4.68 to \$4.86 per unit N) and 10 cents; standard grades crushed feeding tankage, \$5.53 per unit ammonia (\$6.72 per unit N); blood, \$5.38 (\$6.54 per unit N); dry rendered tankage, \$1.21 per unit of protein, Chicago basis.

SENATE COMMITTEE STARTS INVESTIGATION

(Continued from page 6)

P. H. Groggins, chief of the Chemicals and Fertilizer Branch of the War Food Administration. It is in reply to complaints of the Maybank Fertilizer Corporation and Planters Fertilizer and Phosphate Corporation against the prospective inadequacy of Chilean nitrate supplies. Mr. Groggins' letter follows:

"It is true present plans call for the importation of only 500,000 tons of Chilean nitrate of soda, as compared to 1,000,000 tons during the past fiscal year. This does not, however, convey a true picture of our total supplies of chemical nitrogenous materials.

"In the 1942-43 fiscal year approximately 1,000,000 tons of sodium nitrate were imported from Chile. Considerable tonnage was used in mixed fertilizers. The quantity used for side and top dressing of crops approximated 812,000 tons. None is to be used this year in mixed fertilizer. For the 1943-44 year supplies for top and side dressing should equal 90 per cent of the tonnages used last year, or possibly more. Five hundred thousand tons is expected to be provided in Chilean imports. The balance will come from domestic production of synthetic nitrate of soda. Obviously, there is no factual foundation to the rumor that we have only 50 per cent of a normal supply of this material.

"Nitrate of soda alone will equal only 56 per cent of our total supply of chemical nitrogenous materials for the 1943-44 year, available for direct application. However, the total supply of nitrogen, for such purpose, from all materials, is about 35 per cent greater than for 1942-43, which, incidentally, saw our fertilizer consumption at the highest level in history. This increased supply is largely in the form of ammonium nitrate. This, too, is an excellent material and is now being offered in improved mechanical condition comparable to nitrate of soda, sulphate of ammonia, and other better known materials, though no more efficient source of nitrogen.

"In order to obtain equitable distribution of this very large supply of fertilizer materials, farmers should be encouraged to take at least 25 per cent, and possibly more, of their straight nitrogen fertilizer requirements in the form of ammonium nitrate. By so doing they will insure an adequate supply of fertilizer for all farmers since, if not utilized as produced, ammonium nitrate processing plants would be forced to close down, and we could conceivably lose a goodly portion of our increased supplies."

New Jersey Fertilizer Conference

The New Jersey fertilizer conference, called by Dr. William H. Martin and held on November 4th, was attended by about sixty industry representatives. Dr. F. W. Parker and Dr. A. M. Smith spoke on the use of ammonium nitrate as a side-dressing material and in mixed fertilizers and answered many questions. It was apparent from this discussion that the shotted and coated product now being received from the Canadian plants is in much better condition than that which came in only two or three months ago. George Worman, field representative of WEA, stated that the agricultural workers in eight



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Every fertilizer manufacturer and dealer in areas where corn is grown will find much of interest in Purdue University's Bulletin 482.

Purdue's experiments have shown greatly increased corn yields from deep placement of larger quantities of nitrogen than are usually used. This research points the way to new practices in fertilizer application and much broader markets for the fertilizer industry.

Corn growers everywhere will immediately appreciate the importance of these studies in the field of soil improvement and sustained fertility. Their fertilizer requirements will be greater than in the past.

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AMERICAN CYANAMID COMPANY

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northeastern States are cooperating heartily in urging farmers to order and take delivery of fertilizers early, and Dr. Firman E. Bear discussed the critical feed situation, emphasizing fertilizer use on pastures and hay crops as the best solution. Mr. H. R. Smalley spoke briefly on the effect of fertilizer on total crop production. Dr. Martin presided.

Bemis Moves Offices

On November 1st, the general offices of Bemis Brothers' Bag Company were moved from the St. Louis plant to new quarters at 408 Pine Street, St. Louis 2. The St. Louis factory and office will continue at 601 S. 4th Street.

Link-Belt Company Acquires Minneapolis Plant

Announcement is made by W. C. Carter, president, that Link-Belt Company has purchased the manufacturing plant and inventory of Link-Belt Supply Company in Minneapolis, and that Ray S. Wood has been appointed plant manager.

Link-Belt Supply Company had worked very closely with Link-Belt Company since around 1900, having in all this time served as an authorized distributor of Link-Belt Company products in Minneapolis, St. Paul, and the adjacent territory.

The entire Minneapolis organization will be retained, present manufacturing facilities will be improved, and stocks are to be expanded as rapidly as possible.

September Sulphate of Ammonia

The figures issued by the U. S. Bureau of Mines show that production of by-product sulphate of ammonia and ammonia liquor during September continued at the peak levels maintained during the past two years, with daily output of about 2,100 tons of sul-

phate and 95 tons (NH₃ content) of liquor. Sales increased somewhat over August, with the result that stocks on hand at the end of the months were reduced to 38,192 tons of sulphate and 1,015 tons of ammonia liquor.

	Sulphate of Ammonia Tons	Ammonia Liquor Tons NH ₃
Production		
September, 1943	65,073	2,802
August, 1943	65,486	2,899
September, 1942	62,941	2,832
January-September, 1943	570,242	25,533
January-September, 1942	575,185	25,169
Sales		
September, 1943	69,107	2,988
August, 1943	62,960	2,967
September, 1942	66,296	2,957
Stocks on hand		
September 30, 1943	38,192	1,015
August 31, 1943	42,407	1,028
September 30, 1942	54,623	858
August 31, 1942	58,148	850

TVA TO DISTRIBUTE EXCESS ARMY AMMONIUM NITRATE

(Continued from page 7)

proposed. These were listed by Dr. Morgan as follows:

1. A unified distributing organization. The Ordnance Department does not expect to enter into general distribution and, for this reason, either a single firm or an organized group must act as the initial distributor. In view of the fact that there are a number of Ordnance plants, and that the production in each may vary, offers should be made for the entire output of agricultural grade ammonium nitrate, and not for the output of any plant or for any fraction of total production. In the event that financial or legal considerations would complicate operations by a group of buyers, it may be possible for the Defense Supplies Corporation to act in their behalf on the initial purchase from the Ordnance Department.

2. The firm or group distributing Ordnance ammonium nitrate must operate fully in

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Last season, due to reduced supplies available for fertilizer, nitrogen could not be used in fertilizer for Fall-seeded small grain.

But now, with easing of the fertilizer nitrogen situation, this essential plant food element is again available.

Nitrogen in the fertilizer used at planting helps vital food and feed crops make a good start toward maximum yield.

Du Pont Urea-Ammonia Liquor can supply to advantage a large portion of the nitrogen needed in fertilizer for small grain. Carrying two leaching-resistant forms of nitrogen, Urea-Ammonia Liquor is especially useful in fertilizer applied to small grain crops in the Fall.

Ask Du Pont for suggestions that will help make the available supplies of nitrogen do the most good. E. I. du Pont de Nemours & Co. (Inc.), Ammonia Department, Wilmington, Delaware.



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LIQUOR

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

MENTION "THE AMERICAN FERTILIZER" WHEN WRITING TO ADVERTISERS.

accordance with the allocations of the WPB. In the event, therefore, that consumers of nitrogen fertilizers desire to participate in the distributing organization, they should bear in mind that they do so in the role of distributors only.

► The letter concluded by saying that interested parties should consult the Chemicals Division if further information is desired on the program. Proposals should be submitted to the WPB for consideration prior to December 15, 1943.

REVISION OF FERTILIZER ORDER

(Continued from page 10)

(3) *Flowers, bulbs, nurseries, etc.* No fertilizer manufacturer, dealer or agent shall, subject to the exemptions provided for in paragraph (d) (2) hereof, deliver any fertilizer for use on, and no person shall use any fertilizer on, nurseries or commercial plantings of flowers, bulbs, shrubs, ornamental trees, or other ornamental plants in excess of 75 per cent of the total quantity of fertilizer (in terms of nitrogen, available phosphoric acid, and potash) used for such purposes by such person during either the period July 1, 1941, to June 30, 1942, or July 1, 1942, to June 30, 1943. The restriction of this paragraph (b) (3) shall not apply to the delivery and use of fertilizer for any food crop plant.

(4) *Size of packages.* No fertilizer manufacturer, dealer or agent shall deliver any fertilizer for use on crops in packages of less than 80 pounds: *Provided, however,* That fertilizer delivered pursuant to paragraphs (b) (2) and (d) (1) (i) hereof may be packaged in packages of 5, 10, 25, and 50 pounds net weight: *Provided, further,* That fertilizer delivered pursuant to paragraphs (c) (2) and (d) (2) (ii) hereof may be packaged in containers of any size.

Specialty Fertilizer

(c) *Specialty fertilizer.* (1) During the period July 1, 1943, to June 30, 1944, each fertilizer manufacturer may manufacture no more than one grade of mixed specialty fertilizer for sale in any particular State under his own brand and guarantee, and, in addition, may manufacture mixed specialty fertilizer to be registered and guaranteed under State law by another person (only one grade for any one person) who purchases it for resale under his own brand and guarantee. However, each manufacturer may sell and deliver straight nitrogenous material and superphosphate as specialty fertilizer. For such purposes, each manufacturer may use quantities of nitrogen and potash not to exceed 50 per cent of the

quantities of each used by such manufacturer for such purposes during the period July 1, 1941, to June 30, 1942. In determining such base quantities of nitrogen and potash, a manufacturer may include fertilizer used for the specialty fertilizer purposes as set forth in paragraph (a) (14) above, whether it was marketed as specialty fertilizer or not. A grade of mixed specialty fertilizer need not be an approved grade, but must contain at least 16 units of plant food (in terms of nitrogen, available phosphoric acid, and potash). The water-insoluble organic nitrogen content of mixed specialty fertilizer shall not exceed 25 per cent of its total nitrogen content.

(2) No fertilizer manufacturer, dealer or agent shall, subject to the exemptions provided for in paragraph (d) (2) hereof, deliver any fertilizer for use on, and no person shall use any fertilizer on, lawns, golf courses, parks, cemeteries, roadsides, or non-commercial plantings of trees, shrubs, or flowers, except specialty fertilizers. The restrictions provided for in this paragraph (c) (2) shall apply to the use by any landscape gardener or nurseryman of fertilizer on lawns, trees, shrubs, or flowers planted on the premises of his customers.

(d) *Exemptions from restrictions.* (1) The

ALEX. M. McIVER & SON

*Official Brokers for
MILORGANITE*

*Specializing
Nitrogenous Materials
Blood and Fertilizer Tankage*

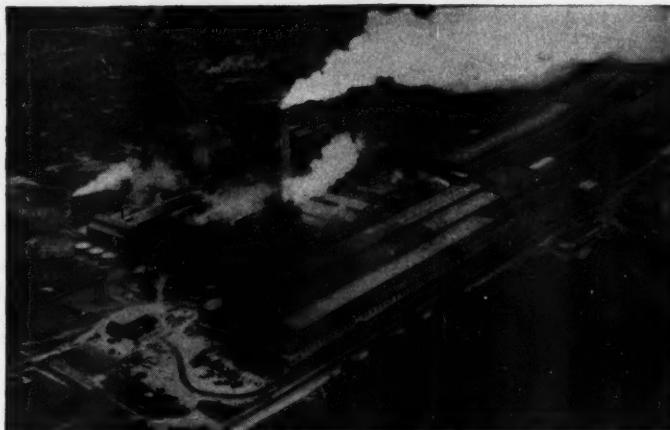
*Phosphate Rock
Bone Meals
Manganese Sulphate*

**SOUTH AMERICAN DRY
RENDERED TANKAGE**

**PEOPLES OFFICE BUILDING
Charleston, S. C.**

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THE largest and most modern Heavy Duty Multiwall Paper Bag plant in the world is located at Camden, Arkansas, adjacent to our own pulp and paper mills and nearby timber lands.



Here is made every type of Multiwall Paper bag

SEWN VALVE BAGS • PASTED VALVE BAGS SEWN OPEN MOUTH BAGS • PASTED OPEN MOUTH BAGS

In addition, we furnish spouts, scales and closing equipment for both types of open mouth bags.

Our experienced engineers in your locality will be glad to study your packaging problem; recommending the use of the proper type of bag and the necessary closing and filling equipment. This, of course, without obligation.

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Agents for

Bagpak, Incorporated



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ONE-MAN PACKAGE



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George & Sherrard Paper Co.

EASY TO HANDLE

MENTION "THE AMERICAN FERTILIZER" WHEN WRITING TO ADVERTISERS.

restrictions provided for in paragraph (b) (1) hereof shall not apply to:

(i) Deliveries by fertilizer manufacturers, dealers and agents of any fertilizer for the preparation of solutions to be used in the transplanting of vegetable crop plants, or the use by any person of fertilizer delivered pursuant to this paragraph (d) (1) (i).

(ii) Deliveries by fertilizer manufacturers, dealers and agents of stocks of unapproved grades of fertilizer in bags in their hands on July 1, 1943, to be used on Group A or Group B crops, or the use by any person of any fertilizer delivered pursuant to this paragraph (d) (1) (ii) for such purpose.

(2) The restrictions of paragraphs (b) (1), (b) (2), (b) (3) and (c) (2) hereof shall not apply to:

(i) The use by any person of any fertilizer on hand on July 1, 1943, for use and not for sale. Such fertilizer may be used for any purpose.

(ii) The manufacture or delivery of fertilizer in pressed tablet form, or in a completely soluble form, for use on plants, flowers, and grasses: *Provided, however,* That no materials allocated by the War Production Board for use in agricultural fertilizers shall be used in the manufacture of fertilizer in pressed tablet or completely soluble form.

(iii) Deliveries by any person of any fertilizer to a fertilizer manufacturer for use in the manufacture of mixed fertilizer.

(iv) Deliveries by fertilizer manufacturers, dealers or agents of any fertilizer for use in establishing and maintaining grass and other vegetation at Air Force Stations of the United States Army, Navy, Marine Corps and Coast Guard, and at other military installations for establishing and maintaining grass and other vegetation, where such is certified, in the case of the Army, by the Division Engineer, or, in the case of the Navy, Marine Corps or Coast Guard, by the Agronomist, Bureau of Aeronautics, Navy Department, as essential for training activities, operations or health, or the use by any person of any fertilizer delivered pursuant to this paragraph (d) (2) (iv).

(v) Deliveries of fertilizer for experimental purposes to educational institutions or publicly-owned agricultural institutions, or the

use of fertilizer by such institutions for such purposes.

(e) *Acceptance of delivery in violation of order.* No person shall accept delivery of any fertilizer which he knows or has reason to believe is delivered in violation of this order.

(f) *Directions.* (1) Each fertilizer manufacturer shall comply with such directions as may be issued from time to time by the Director with respect to the quantities, grades, and kinds of mixed fertilizer to be manufactured and with respect to the use or delivery of any fertilizers.

(2) Each person affected by this order shall comply with such directions as may be issued from time to time by the Director with respect to the delivery and use of fertilizers.

(To be continued in the next issue)

NOVEMBER CROP REPORT

(Continued from page 8)

put. From every point of view, the record is one of great accomplishment under difficulties. The acreage planted was only a few per cent under what seems likely to be the maximum to be expected during the war. Crop yields per acre averaged 24 per cent above the 1923-32 or pre-drought level and slightly higher than the yields of any past season prior to the phenomenal yields of 1942. These high yields were not accidental for the weather of 1943, unlike that of 1942, was not much more favorable for crops than the average during all past seasons for which we have records. The high yields were due primarily to better farming practices and technical improvements that were not apparent during the drought and depression years.

With both the acreage and yields being pushed up by war conditions, total crop production in 1943 will be about 18 per cent above the average during the 1923-32 or pre-drought period. This would be 6 per cent below the crop output last season when weather conditions were particularly favorable, but it would be 5 per cent above production in any previous year.

Feed conditions are sharply different from those prevailing a year ago. The improvement in the corn and sorghum crops during

DEPENDABLE FOR MORE THAN FIFTY YEARS

All-Steel Self-Contained
Fertilizer Mixing Units
Swing Hammer
and Cage Type
Tailings
Pulverizers

Batch Mixers—Dry Batching
Pan Mixers—Wet Mixing
Vibrating
Screens
Dust Weigh
Hoppers
Acid Weigh
Scales

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505 Indiana Ave. AURORA, IND. A. U. S. A.

STEDMAN
FERTILIZER PLANT
EQUIPMENT

A Complete Service

THE strategic factory locations of the American Agricultural Chemical Company, as shown on the accompanying map, assure prompt, dependable service for the complete line of products listed below.

We manufacture all grades of Commercial Fertilizers, Superphosphate, Agrinite Tankage, Bone Black, Bone Black Pigments (Cosmic Black), Dicalcium Phosphate, Monocalcium Phosphate, Gelatin, Agricultural Insecticides (including Pyrox, Arsenate of Lead, Calcium Arsenate, etc.), Trisodium and Disodium Phosphate, Phosphorus, Phosphoric Acid, Sulphuric Acid, Salt Cake; and we are importers and/or dealers in Nitrate of Soda, Cyanamid, Potash Salts, Sulphate of Ammonia, Raw Bone Meal, Steamed Bone Meal, Sheep and Goat Manure, Fish and Blood. We mine and sell all grades of Florida Pebble Phosphate Rock.



FACTORIES

Alexandria, Va.	Detroit, Mich.	Pensacola, Fla.
Baltimore, Md.	East St. Louis, Ill.	Pierce, Fla.
Buffalo, N. Y.	Greensboro, N. C.	Port Hope, Ont., Can.
Carteret, N. J.	Havana, Cuba	Presque Isle, Me.
Cayce, S. C.	Henderson, N. C.	Savannah, Ga.
Chambley Canton, Quebec, Can.	Montgomery, Ala.	Searsport, Maine
Charleston, S. C.	Norfolk, Va.	South Amboy, N. J.
Cincinnati, Ohio	No. Weymouth, Mass.	Spartanburg, S. C.
Cleveland, Ohio		West Haven, Conn.
		Wilmington, N. C.

The AMERICAN AGRICULTURAL CHEMICAL Co.

50 Church Street, New York City

SALES OFFICES

Alexandria, Va.	Columbia, S. C.	Laurel, Miss.	Pierce, Fla.
Baltimore, Md.	Detroit, Mich.	Montgomery, Ala.	Port Hope, Ont., Can.
Buffalo, N. Y.	East St. Louis, Ill.	Montreal, Quebec, Can.	St. Paul, Minnesota
Carteret, N. J.	Greensboro, N. C.	New York, N. Y.	Savannah, Ga.
Charleston, S. C.	Havana, Cuba	Norfolk, Va.	Spartanburg, S. C.
Cincinnati, Ohio	Henderson, N. C.	No. Weymouth, Mass.	Wilmington, N. C.
Cleveland, Ohio	Houlton, Me.	Pensacola, Fla.	

MENTION "THE AMERICAN FERTILIZER" WHEN WRITING TO ADVERTISERS.



October and the heavy marketings of livestock tend to ease the feed situation, but supplies are unevenly distributed and seem to be closely held. Many farmers who normally sell grain now prefer to increase their livestock rather than sell grain at the ceiling price. On the other hand, in some deficit feed areas, farmers are unable to buy corn and are selling young pigs at less than half the price prevailing last spring.

The condition of pastures on November 1st was reported as 70 per cent of normal, compared with the unusually high average of 83 on the same date last year. The condition of western ranges averaged 79 per cent, compared with 86 per cent a year ago. In the Southwest, winter wheat will furnish relatively little winter pasture as compared with last year. The Southwest had too little rain through October for growth of winter grains and cover crops, but the rains of early November will help in some sections. November reports on the supply of hay and roughage, as a per cent of normal, were lower than a year ago in 40 States and indicate acute shortages in the drought areas—particularly in Oklahoma and Arkansas and parts of Mississippi, New Mexico, western Kansas, Delaware, Maryland and Virginia. Nationally, supplies of both hay and feed grains are large and, if evenly distributed and closely utilized, they would permit nearly normal rates of feeding per head until the beginning of the next harvest. Adding the production of corn and sorghum for grain to the October 1st stocks of all feed grains indicates a farm supply of feed grains of 121 million tons. Last year the October supply was about 130 million tons, of which about 102 million tons disappeared before July 1st. During the preceding 15 years, the October 1st supply averaged 94 million tons and ranged from about 114 million tons in 1941 down to 58 million in the drought year 1934. Supplies this year are sufficient to permit carrying more livestock next year than have been on the farms at any time prior to this year, but some shifts between regions and between kinds are to be expected if prices continue out of balance.

The total 1943 fruit production, including 8 major deciduous fruits and the citrus crops to

be harvested this fall and next spring and summer, is expected to be about 9 per cent less than the corresponding total for last year. According to present indications, total United States citrus production will be about 3 per cent more than last season's total. Production of all oranges and tangerines will be about 7 per cent more, and all grapefruit about 3 per cent less than last season. Growing conditions have been favorable in all citrus areas except Florida, where most groves need more moisture. Production of the 8 major deciduous fruits (apples, peaches, pears, grapes, cherries, plums, prunes, apricots) is indicated to be 17 per cent less than in 1942. Estimated production of commercial apples declined 2 per cent during October and is now 31 per cent less than last year's crop. Grapes are 16 per cent more than last year, despite declines in most States except California, where the crop is a record. Production of plums and prunes is 13 per cent above last year. Other deciduous fruits show percentage declines from last year as follows: peaches 37, pears 23, cherries 37, and apricots 53. Crops of practically all fruits and nuts are being closely harvested and utilized this year. Production of tree nuts (walnuts, pecans, almonds, filberts) in 1943 is indicated to be 10 per cent more than in 1942 and 22 per cent larger than average.

The season for tender vegetables in northern producing areas has been terminated by frosts, but considerable acreages of hardy crops such as beets, cabbage, carrots, cauliflower, celery, parsnips and turnips remain to be harvested, especially in New York and Pennsylvania. In southern areas, harvesting of such tender crops as snap beans, eggplant, green peppers and tomatoes has commenced, and these supplies will become increasingly important during the next few weeks.

Looking ahead to the 1944 season estimates made to date of acreages of commercial vegetables planted or to be planted comprising winter crops of artichokes, cabbage, cauliflower, escarole, kale, lettuce and shallots, and spring crops of asparagus and onions, indicate a combined acreage of these crops about 16 per cent greater than for the corresponding 1943 season. Increases in onions and cabbages are expected to be especially large.

L.W. HUBER COMPANY
Brokers Fertilizer Materials

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Specializing in
Sulphate of Ammonia
Low Grade Ammoniates
Superphosphate
Sulphuric Acid
Bags

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invited

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Fertilizer plants all over the country—large and small—state their needs and we meet them. Large stocks of seasoned materials and ample modern production facilities enable us to make prompt shipments.

TRIPLE SUPERPHOSPHATE

46 to 48% Available Phosphoric Acid

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HIGH-GRADE SUPERPHOSPHATE

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SPECIFY THREE ELEPHANT



.... WHEN BORON IS NEEDED TO CORRECT A DEFICIENCY OF THIS IMPORTANT SECONDARY ELEMENT

Agricultural authorities have shown that a lack of Boron in the soil can result in deficiency diseases which seriously impair the yield and quality of crops.

When Boron deficiencies are found, follow the recommendations of local County Agents or State Experiment Stations.

Information and references available on request.

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122 East 42nd ST., NEW YORK CITY

Pioneer Producers of Muriate of Potash in America

See Page 4

BUYERS' GUIDE

A CLASSIFIED INDEX TO ALL THE ADVERTISERS IN "THE AMERICAN FERTILIZER"



This list contains representative concerns in the Commercial Fertilizer Industry, including fertilizer manufacturers, machinery and equipment manufacturers, dealers in and manufacturers of commercial fertilizer materials and supplies, brokers, chemists, etc. For Alphabetical List of Advertisers, see page 33.



ACID BRICK

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

ACID EGGS

Chemical Construction Corp., New York City.

ACIDULATING UNITS

Chemical Construction Corp., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

AMMO-PHOS

American Cyanamid Co., New York City.

AMMONIA—Anhydrous

Barrett Division, The, Allied Chemical & Dye Corp., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Hydrocarbon Products Co., New York City.

AMMONIA LIQUOR

Barrett Division, The, Allied Chemical & Dye Corp., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Hydrocarbon Products Co., New York City.

AMMONIA OXIDATION UNITS

Chemical Construction Corp., New York City.

AMMONIATING EQUIPMENT

Sackett & Sons Co., The A. J., Baltimore, Md.

AMMONIUM NITRATE SOLUTIONS

Barrett Division, The, Allied Chemical & Dye Corp., New York City.

AUTOMATIC ELEVATOR TAKEUPS

Sackett & Sons Co., The A. J., Baltimore, Md.

BABBITT

Sackett & Sons Co., The A. J., Baltimore, Md.

BAGS AND BAGGING—Manufacturers

Bagpak, Inc., New York City.
Bemis Bro. Bag Co., St. Louis, Mo.
St. Regis Paper Co., New York City.
Textile Bag Mfrs. Association, Chicago, Ill.
Union Bag & Paper Corporation, New York City.

BAGS—Cotton

Bemis Bro. Bag Co., St. Louis, Mo.
Textile Bag Mfrs. Association, Chicago, Ill.

BAGS—Paper

Bagpak, Inc., New York City.
Bemis Bro. Bag Co., St. Louis, Mo.
St. Regis Paper Co., New York City.
Union Bag & Paper Corporation, New York City.

BAGS (Waterproof)—Manufacturers

Bemis Bro. Bag Co., St. Louis, Mo.
St. Regis Paper Co., New York City.
Textile Bag Mfrs. Association, Chicago, Ill.
Union Bag & Paper Corporation, New York City.

BAGS—Dealers and Brokers

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

BAG CLOSING MACHINES

Bagpak Inc., New York City.
St. Regis Paper Co., New York City.

BAGGING MACHINES—For Filling Sacks

Atlanta Utility Works, East Point, Ga.
Bagpak, Inc., New York City.
St. Regis Paper Co., New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

BAG PILERS

Link-Belt Company, Philadelphia, Chicago.

BEARINGS

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

BELT LACING

Sackett & Sons Co., The A. J., Baltimore, Md.

BELTING—Chain

Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

BELTING—Leather, Rubber, Canvas

Sackett & Sons Co., The A. J., Baltimore, Md.

BOILERS—Steam

Atlanta Utility Works, East Point, Ga.

BONE BLACK

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Huber & Company, New York City.

BONE PRODUCTS

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

BORAX AND BORIC ACID

American Potash and Chem. Corp., New York City.
Pacific Coast Borax Co., New York City.

BROKERS

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Dickerson Co., The, Philadelphia, Pa.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
Keim, Samuel L., Philadelphia, Pa.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

BUCKETS—Elevator

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

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BUCKETS—For Hoists, Cranes, etc., Clam Shell, Orange Peel, Drag Line, Special; Electrically Operated and Multi Power

Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.

BURNERS—Sulphur

Chemical Construction Corp., New York City.

BURNERS—Oil

Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.

CABLEWAYS

Hayward Company, The, New York City.

CARBONATE OF AMMONIA

American Agricultural Chemical Co., New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.

CARS—For Moving Materials

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CARTS—Fertilizer, Standard and Roller Bearing

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

CASTINGS—Acid Resisting

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.

CASTINGS—Iron and Steel

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CEMENT—Acid-Proof

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

CHAIN DRIVES—Silent

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CHAINS AND SPROCKETS

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CHAMBERS—Acid

Chemical Construction Corp., New York City
Fairlie, Andrew M., Atlanta, Ga.

CHEMICAL APPARATUS

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

CHEMICALS

American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Huber & Company, New York City.

CHEMICALS—Continued

International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Phosphate Mining Co., The, New York City.
Wellmann, William E., Baltimore, Md.

CHEMICAL PLANT CONSTRUCTION

Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CHEMISTS AND ASSAYERS

Gascoyne & Co., Baltimore, Md.
Shuey & Company, Inc., Savannah, Ga.
Stillwell & Gladding, New York City.
Wiley & Company, Baltimore, Md.

CLUTCHES

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

CONCENTRATORS—Sulphuric Acid

Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

CONDITIONERS AND FILLERS

American Limestone Co., Knoxville, Tenn.
Dickerson Co., The, Philadelphia, Pa.
Phosphate Mining Co., The, New York City

CONTACT ACID PLANTS

Chemical Construction Corp., New York City

COPPER SULPHATE

Tennessee Corporation, Atlanta, Ga.

COTTONSEED PRODUCTS

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmalz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

CRANES AND DERRICKS

Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

CYANAMID

American Agricultural Chemical Co., New York City
American Cyanamid Co., New York City.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Jett, Joseph C., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

DENS—Superphosphate

Chemical Construction Corp., New York City.
Stedman's Foundry and Mach. Works, Aurora, Ind.

Andrew M. Fairlie
CHEMICAL ENGINEER

22 Marietta Street Building ATLANTA, GA.

CABLE ADDRESS: "SULFACID ATLANTA"

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DISINTEGRATORS

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

DRYERS—Direct Heat

Sackett & Sons Co., The A. J., Baltimore, Md.

DRIVES—Electric

Link-Belt Company, Philadelphia, Chicago.

DUMP CARS

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

DUST COLLECTING SYSTEMS

Sackett & Sons Co., The A. J., Baltimore, Md.

ELECTRIC MOTORS AND APPLIANCES

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

ELEVATORS

Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

ELEVATORS AND CONVEYORS—Portable

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

ENGINEERS—Chemical and Industrial

Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

ENGINES—Steam

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

EXCAVATORS AND DREDGES—Drag Line and Cableway

Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Link-Belt Speeder Corp., Chicago, Ill., and Cedar
Rapids, Iowa.

FERTILIZER MANUFACTURERS

American Agricultural Chemical Co., New York City.
American Cyanamid Company, New York City.
Armour Fertilizer Works, Atlanta, Ga.
Farmers Fertilizer Company, Columbus, Ohio.
International Minerals and Chemical Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp.,
Tampa, Fla.

FISH SCRAP AND OIL

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

FOUNDERS AND MACHINISTS

Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

GARBAGE TANKAGE

Wellmann, William E., Baltimore, Md.

GEARS—Machine Moulded and Cut

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

GEARS—Silent

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

GELATINE AND GLUE

American Agricultural Chemical Co., New York City.

GUANO

Baker & Bro., H. J., New York City.

HOISTS—Electric, Floor and Cage Operated, Portable

Hayward Company, The, New York City.

HOPPERS

Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

IMPORTERS, EXPORTERS

Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Wellmann, William E., Baltimore, Md.

IRON SULPHATE

Tennessee Corporation, Atlanta, Ga.

INSECTICIDES

American Agricultural Chemical Co., New York City.

LACING—Belt

Sackett & Sons Co., The A. J., Baltimore, Md.

LIMESTONE

American Agricultural Chemical Co., New York City.
American Limestone Co., Knoxville, Tenn.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

LOADERS—Car and Wagon, for Fertilizers

Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Acid Making

Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.
Duriron Co., Inc., The, Dayton, Ohio.
Fairlie, Andrew M., Atlanta, Ga.
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Coal and Ash Handling

Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

MACHINERY—Elevating and Conveying

Atlanta Utility Works, East Point, Ga.
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

MACHINERY—Grinding and Pulverizing

Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

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MAGNETS

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MANGANESE SULPHATE

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MIXERS

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Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

NITRATE OF SODA

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
Chilean Nitrate Sales Corp., New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

NITRATE OVENS AND APPARATUS

Chemical Construction Corp., New York City.

NITROGEN SOLUTIONS

Barrett Division, The, Allied Chemical & Dye Corp., New York City.

NITROGENOUS ORGANIC MATERIAL

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., Wilmington, Del.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Smith-Rowland Co., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

NOZZLES—Spray

Monarch Mfg. Works, Philadelphia, Pa.

PACKING—For Acid Towers

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

PANS AND POTS

Stedman's Foundry and Mach. Works, Aurora, Ind.

PHOSPHATE MINING PLANTS

Chemical Construction Corp., New York City.

PHOSPHATE ROCK

American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City
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Coronet Phosphate Co., New York City.
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PIPE—Acid Resisting

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PIPES—Chemical Stoneware

Chemical Construction Corp., New York City.

PIPES—Wooden

Stedman's Foundry and Mach. Works, Aurora, Ind.

PLANT CONSTRUCTION—Fertilizer and Acid

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POTASH SALTS—Dealers and Brokers

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

POTASH SALTS—Manufacturers

American Potash and Chem. Corp., New York City.
Potash Co. of America, New York City.
International Minerals & Chemical Corp., Chicago, Ill.
United States Potash Co., New York City.

PULLEYS AND HANGERS

Atlanta Utility Works, East Point, Ga.
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Stedman's Foundry and Mach. Works, Aurora, Ind.

PUMPS—Acid-Resisting

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Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

PYRITES—Brokers

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Baker & Bro., New York City.
Wellmann, William E., Baltimore, Md.

QUARTZ

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RINGS—Sulphuric Acid Tower

Chemical Construction Corp., New York City.

ROUGH AMMONIATES

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Schmaltz, Jos. H., Chicago, Ill.
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SCREENS

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SEPARATORS—Air

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SEPARATORS—Including Vibrating

Sackett & Sons Co., The A. J., Baltimore, Md.

SEPARATORS—Magnetic

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SHAFTING

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Link-Belt Company, Philadelphia, Chicago.
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SHOVELS—Power

Link-Belt Company, Philadelphia, Chicago.
Link-Belt Speeder Corporation, Chicago, Ill., and Cedar
Rapids, Iowa.
Sackett & Sons Co., The A. J., Baltimore, Md.

SPRAYS—Acid Chambers

Monarch Mfg. Works, Inc., Philadelphia, Pa.

SPROCKET WHEELS (See Chains and Sprockets)

STACKS

Sackett & Sons Co., The A. J., Baltimore, Md.

SULPHATE OF AMMONIA

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New
York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Hydrocarbon Products Co., New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

SULPHUR

Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Freeport Sulphur Co., New York City.
Texas Gulf Sulphur Co., New York City.

SULPHURIC ACID

American Agricultural Chemical Co., New York City
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.

SULPHURIC ACID—Continued

U. S. Phosphoric Products Division, Tennessee Corp.,
Tampa, Fla.
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SUPERPHOSPHATE

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
U. S. Phosphoric Products Division, Tennessee Corp.,
Tampa, Fla.
Wellmann, William E., Baltimore, Md.

SUPERPHOSPHATE—Concentrated

Armour Fertilizer Works, Atlanta, Ga.
International Minerals & Chemical Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp.,
Tampa, Fla.

SYPHONS—For Acid

Monarch Mfg. Works, Inc., Philadelphia, Pa.

TALLOW AND GREASE

American Agricultural Chemical Co., New York City.

TANKAGE

American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Smith-Rowland, Norfolk, Va.
Wellmann, William E., Baltimore, Md.

TANKAGE—Garbage

Huber & Company, New York City.

TANKS

Sackett & Sons, Co., The A. J., Baltimore, Md.

TILE—Acid-Proof

Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

TOWERS—Acid and Absorption

Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

UNLOADERS—Car and Boat

Hayward Company, The, New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

UREA

DuPont de Nemours & Co., E. I., Wilmington, Del.

UREA-AMMONIA LIQUOR

DuPont de Nemours & Co., E. I., Wilmington, Del.

VALVES—Acid-Resisting

Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
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